Health Professions Education

Volume 9 | Issue 4 Article 7

2023

Saudi Medical Education Directives (MEDs) Framework Saudi MEDs Framework

Rania Zaini
Medical Education Department, Faculty of Medicine, Umm AlQura University, Makkah, KSA,
rgzaini@uqu.edu.sa

Ahmed Al-Rumayyan
Associate Professor of Pediatrics College of Medicine, King Saud Bin Abdulaziz University of Health Sciences Riyadh – KSA

Hamza Abdulghani
Professor Medical Education & Consultant of Family Medicine College of Medicine King Saud University Riyadh – KSA

Khalid AlQumaizi
Professor & Consultant of Family Medicine, College of Medicine, Al-Imam Mohammad Ibn Saud Islamic University Riyadh – KSA

Azzam Al-Kadi
Associate Professor of Surgery Unaizah College of Medicine Qassim University Unaizah – KSA

See next page for additional authors

Recommended Citation

Zaini, Rania; Al-Rumayyan, Ahmed; Abdulghani, Hamza; AlQumaizi, Khalid; Al-Kadi, Azzam; Al-Hayani, Abdulmonem; Alsaedi, Saad; Saleh, Sherif; and AlRukban, Mohammad (2023) "Saudi Medical Education Directives (MEDs) Framework Saudi MEDs Framework," *Health Professions Education*: Vol. 9: Iss. 4, Article 7.
Available at: https://hpe.researchcommons.org/journal/vol9/iss4/7

Saudi Medical Education Directives (MEDs) Framework Saudi MEDs Framework

Authors

Rania Zaini, Ahmed Al-Rumayyan, Hamza Abdulghani, Khalid AlQumaizi, Azzam Al-Kadi, Abdulmonem Al-Hayani, Saad Alsaedi, Sherif Saleh, and Mohammad AlRukban

GOOD PRACTICES

Saudi Medical Education Directives Framework: Saudi MEDs Framework

Rania Zaini [a,*], Ahmed Al-Rumayyan [b], Hamza M. Abdulghani [c], Khalid AlQumaizi [d], Azzam Al-Kadi [e], Saad Alsaedi [f], Abdulmonem Al-Hayani [g], Sherif Saleh [h], Mohammad AlRukban [c,i]

[a] Department of Medical Education, Faculty of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia
[b] Department of Pediatrics, College of Medicine, King Saud Bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia
[c] Department of Medical Education, College of Medicine, King Saud University, Riyadh, Saudi Arabia
[d] Department of Family Medicine, College of Medicine, AlMaarefa University, Riyadh, Saudi Arabia
[e] Department of Surgery, Unaizah College of Medicine and Medical Sciences, Qassim University, Unaizah, Saudi Arabia
[f] Department of Pediatrics, King Faisal Specialist Hospital and Research Center and Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia
[g] Department of Anatomy, Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia
[h] Department of Biochemistry, College of Medicine, University of Almaarefa, Riyadh, Saudi Arabia
[i] Department of Family and Community Medicine, College of Medicine, King Saud University, Riyadh, Saudi Arabia

Abstract

Background: **Competence-Based Medical Education CBME becomes an essential requirement amongst medical education and practice societies. In response to the increasing call for national standard of Saudi medical education, the Denary of Saudi Medical Colleges developed "Saudi MEDs project" in 2009, which aimed to have a national competence-based framework for medical schools.**

Purpose: **This paper summarizes Phase II of the Saudi MEDs project, which aims to develop a comprehensive competence-based medical education framework for medical schools. This includes detailed statement of the essential learning outcomes and enabling competences for each domain identified in Phase I of the project.**

Method: **Triangulation approach is utilized to increase the credibility and validity of research findings. The study consists of two-round Modified Delphi Technique; Focused Group interviews with stakeholders; and structural review by international experts.**

Results: **The Saudi MEDs framework is expressed as a three-level model; six major themes related to a description of a physician's duties and obligations (Level1), seventeen essential learning outcomes of a physician (Level 2), eighty enabling competences to be fulfilled by all undergraduate medical programs in Saudi Arabia (Level 3).**

Discussion: **The Saudi MEDs framework is expressed as a three-level model, which provides flexibility to ensures a school autonomy and diversity of contextual curricula. Also the study develop national consensus among stakeholders about the framework and its importance to develop and maintain a quality medical education and practice in the Kingdom. However, successful deployment of the Saudi MEDs required a strategic plan and roadmap.**

Keywords: Saudi MEDs, Competence-based medical education, Benchmark, Undergraduate curriculum, Consensus

1. Introduction

The debate about the status of medical education in Saudi Arabia has been increased in the last decades [1–5]. The tremendous change in the face of Saudi medical education is considered opportunities and threats: The proliferation of private and public medical schools in the last two decades is one of the most significant challenges. There were

Received 24 December 2022; accepted 21 June 2023.
Available online 27 October 2023

* Corresponding author at: Medical Education Department, Faculty of Medicine, Umm AlQura University, PO Box: 6426, Makkah, Saudi Arabia.
E-mail addresses: rgzaini@uqu.edu.sa (R. Zaini), rumayyana@ksau-hs.edu.sa (A. Al-Rumayyan), hamzaabg@gmail.com (H.M. Abdulghani), Kqumaizi@mcst.edu.sa (K. AlQumaizi), azzam.alkadi@qu.edu.sa (A. Al-Kadi), salsaedi@hotmail.com (S. Alsaedi), hayani30@hotmail.com (A. Al-Hayani), sherif.biochem@gmail.com (S. Saleh), mrukban@ksu.edu.sa (M. AlRukban).

https://doi.org/10.55890/2452-3011.1049

only five medical schools by 2000s and the number increased to 38 medical schools by 2020. Some authors present concern about the absence of clearly enforced guidelines for quality control [1]. They emphasize the importance to set clear measures to assure quality medical education and training. On the other hand, Bin Abdulrahman [2], debates that there is significant progress being made about the quality assurance and staff development in Saudi medical education in the last years: Highlighting the role of the Deanery of Saudi Medical Colleges and the National Center for Academic Accreditation and Evaluation (NCAAA) to maintain quality training program and outcomes. The study emphasizes, "quality is not sacrificed in any expansion of medical schools and that novelty is not a substitute for quality" [2].

Competency-based medical education is being adopted and successes to change medical education and training worldwide. It improves teaching and assessment to produced competent graduates and trainees [6]. This concurs with national initiatives; the NCAAA publishes Program Learning Outcomes of some professional programs [7]. The Deanery of Saudi Medical Colleges also develops and publishes Phase I of Saudi MEDs: A competence specification for Saudi medical graduates [8]; The Saudi MEDs Framework project is launched by the Deanery of Saudi Medical Colleges in 2009 to develop a national competence-based medical education for medical schools in the Kingdom of Saudi Arabia. The Framework in Saudi Arabia is theory-guided that is represented in a causal model of five levels or factors that are interrelated in a logical sequence. In this model, the outcome of graduates and later performance as a physician in the health system are influenced by various factors including background variables, inputs, processes outcomes and impact.

The first level is the background factors that include culture, societal values, and economic situation of the country. These factors make each framework specific and contextual. International well-known frameworks, such as the Western frameworks do not necessarily suit all countries. For instance, professionalism is considered an important competence of all frameworks, yet many authors debate that professionalism is influence by cultural diversity and emphases that one size does not fit all [9–12]. The second level includes the inputs variables, such as resources, preparedness, evidence and so forth. This lead to the third level of process variables including main themes or domains of competencies. These are influenced by background and inputs factors. This presents the uniqueness for each framework, which might not exist in the content but rather on the priorities and the focus. The fourth level is the outcome variables or competencies in each domain, which are the results of interactions of the previous factors. This level has the enabling factors, which mainly related to learning outcomes that can be translated and shaped in each curriculum. The last level consists of the actual performance of graduates and impact of physicians in the healthcare system starting with the internship period. Fig. 1.

The Saudi MEDs Framework consists of three phases; **Phase I** of the project aims to develop a general competence-based framework for medical education and training in the Kingdom, which is covering the first three levels of the model. It has accomplished between 2010 and 2011 with an initial competence framework that comprises seven competences and 30 detailed leaning outcomes [8]. **Phase II** aims to develop detailed statements of the required competences in each domain identified in Phase I of the project. It specifies the proficiency level required by a medical graduate at the first day of internship, which covers level four. It is conducted between 2012 and 2016 and presented in this study. **Phase III** and level five of the model will focus on the specifications of the internship structured program and the development of the compulsory training and assessment systems to ensure that graduates have achieved the outcomes specified by the end of the internship year.

Saudi MEDs Phase II taskforce consists of nine members representing national medical schools. The group had many face–face and virtual meetings over three years. This paper presents Phase II of the Saudi Medical Education Directives Framework (Saudi MEDs Framework).

2. Method

The aim of Phase II of the project is to develop a detailed statement of the essential learning outcomes and enabling competences for each domain identified in Phase I of the project. This is fulfilled in a triangulated approach that consists of; two-round Modified Delphi Technique [13], Focused Group interviews [14] with stakeholders, and finally review of the framework by international experts in medical education.

2.1. Modified Delphi Technique with stakeholders

The taskforce reviewed the Saudi MEDs Framework and conducted an extensive literature review for the major international frameworks of competency-based medical education, including but not limited to:

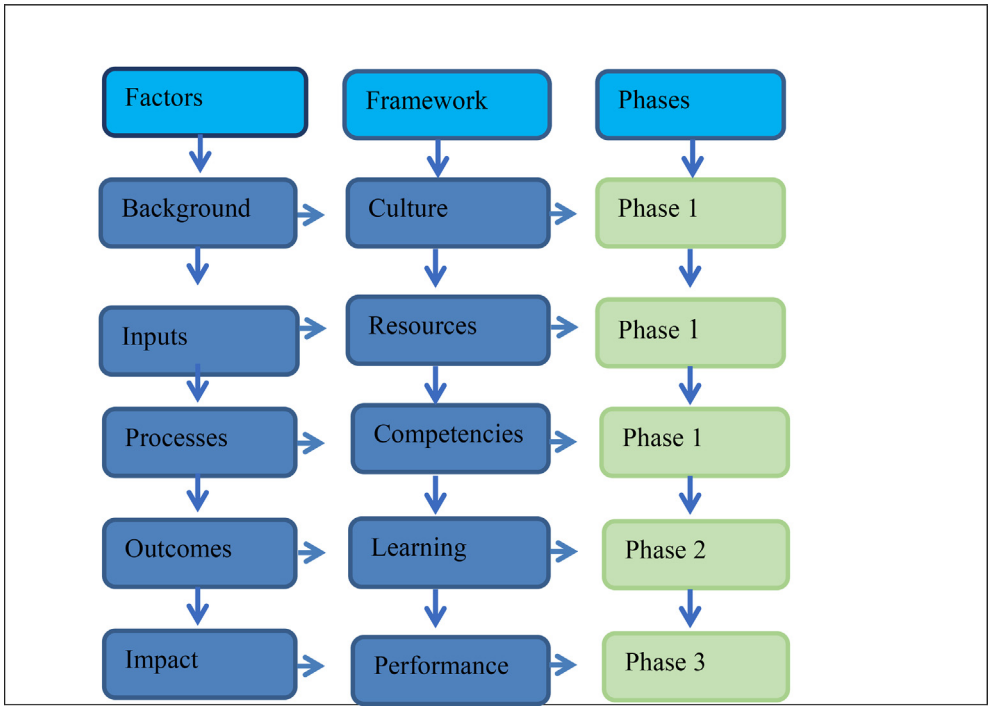

Fig. 1. The Saudi MEDs Project causal model of five levels.

The Brown University Nine Abilities [15], Medical School Objectives Project by AAMC [16], The Scottish Doctor [17] CanMEDs [18,19], Tomorrow's Doctors [20,21], Global Minimal Essential Requirements [22], The European Medical Tuning Project [23], the MBBS Learning Outcomes of Al-Majmaa University and Umm AlQura University, Saudi Arabia. The comprehensive review developed the initial list of competencies of Saudi MEDs Phase I to incorporate seven major domains, 24 sub-domains, and 96 learning outcomes. This was the survey of the first round Modified Delphi technique. Also, the survey included suggested list of the core clinical presentations and a list of the essential skills and procedures that expected to be demonstrated by medical graduates.

The members of the Denary of Saudi Medical Colleges were invited to complete the paper-based survey and review the suggested list between (February–April 2013). Then a second round of the e-survey was disseminated to all medical colleges and they were encouraged to give structural feedback between (May–July 2013). Most of the Deans contributed in the Modified Delphi first round, and only nineteen medical schools in KSA completed the e-survey of the second Delphi round.

The framework was then reviewed based on the feedback in many meetings within the Taskforce Committee. This draft underwent a rigorous revision through a systematic iterative process leading to a "preliminary set" of six domains, 19 sub-domains and 84 competences. Subsequently, the competences were then rewritten according to the taxonomy that matches the NCAAA requirements.

2.2. Focus Group (FG) discussions

Seven FG interviews with stakeholders were conducted in Riyadh and Jeddah between (January–February 2014). Stakeholders include, but not limited to, representatives from the Ministry of Higher Education, Ministry of Health and other governmental healthcare providers, Ministry of Civilian Services, the Saudi Commission for Health Specialties, The National Center for Academic Accreditation and Evaluation (NCAAA), King Abdulaziz City for Science and Technology, the Saudi Center for Complementary Medicine, the Health Insurance Council, the Shaura Council, the private healthcare, private and governmental medical colleges, junior residents, medical interns, and medical students. About 66 participants of stakeholders attended the seven FG meetings in Riyadh and Jeddah. The framework draft was discussed and participants were asked to rate the importance of the suggested outcomes and enabling competencies. The generated feedback of the seven FG meeting was analyzed. There was a focus on the importance of the framework and its'

national impact. There was also an emphasis on the importance to have a room for individual variability among different medical schools. The final draft of the framework consists of six domains, 17 sub-domains, and 80 competences.

2.3. International experts review

Finally, the Saudi MEDs framework was reviewed by four international experts of medical education, who were participated earlier in the development of national and international competence-based medical education frameworks. They were also involved in the accreditation of medical schools worldwide. The experts' views and recommendation were taken in considerations in the final draft of the Saudi Medical Education Directives framework.

2.4. Results

The study consisted of triangulated approaches that includes participations from all medical schools in the Kingdom as well as internal and external stakeholders. The first Delphi round completed by 26 deans with a response rate (74%). The second Delphi round completed by 110 respondents representing 19 medical schools. The result of two-round Delphi Study was "preliminary set" of six domains, 19 sub-domains, and 84 competences.

About 66 participants contributed to the seven Focus Group interviews. The group was heterogeneous representing many related organizations and agencies as direct and indirect stakeholders. These interviews refined the framework items to incorporated six domains, 17 sub-domains, and 80 competences.

Finally the four international medical educator consultants reviewed the framework and gave constructive feedback. Their feedback was considered in refining the statements words or categorization, but no major changes were given. This final framework items included six domains, 17 sub-domains, and 80 competences (Fig. 2. Table 1).

The Saudi MEDs framework was expressed as a three-level model: **Level I** consisted of six major **themes** as description of a physician's duties and obligations. This level was expected from all health practitioners and trainees in Saudi Arabia. These themes were detailed further in Level II.

Level II consisted of seventeen core competencies of a physician. It was considered the main core competencies that MBBS programs would be reviewed by the accreditation body in Saudi Arabia, the NCAAA. These essential learning outcomes were given in further detailed in the next level, according to the level and program specialty.

Level III consisted of eighty enabling competences to be fulfilled by all undergraduate medical programs in Saudi Arabia. This level varied from undergraduate, postgraduate and continuous professional development programs and according to the nature of medical education and practice of the specific specialty. It was considered the core curriculum that suggested by the Saudi MEDs framework, which provided a tool to review or develop MBBS program and provided a structural national benchmark.

The final version of the Saudi MEDs Framework Phase II was approved by the Denary of Saudi Medical Colleges and the Ministry of Education as a national medical education directory framework, in 2015 and 2018 respectively. Finally, series of the official communication was initiated with the legalization bodies in the Kingdom, the National Center for Academic Accreditation and Evaluation (NCAAA) and Saudi Commission for Health Specialties (SCFHS), to discuss the successful deployment of the Saudi MEDs. This included developing an alignment between the Saudi MEDs Framework, and NCAAA standards as well as the SCFHS Saudi Medical License Exam (SMLE).

By 2021, the NCAAA embraced the "Saudi Medical Education Directives Framework (Saudi MEDs Framework)" as the minimum requirement of learning outcomes for the programs in colleges of medicine in the Kingdom [24].

3. Discussion

The Saudi MEDs framework for undergraduate medical programs specified the learning outcomes and enabling competencies that were expected by all medical graduates at the first day of the internship program. The framework is expressed as a three-level model to included six domains, 17 sub-domains, and 80 enabling competences. Nevertheless, Phase I of Saudi MEDs developed seven domains and 30-competencies [8], which were reviewed thoroughly in Phase II of the project and had major modifications. These amendments were due to the major principles that adopted in developing Phase II of the project; developing the three-level model of competence-based framework. This model enabled the continuum of medical education between the clinical training and practice. It also ensured the flexibility of the framework to accommodate different levels of training. However, most of the Phase I listed competencies were incorporated in level two or three of the framework.

The Denary of Saudi Medical Colleges sponsored the Saudi MEDs project with the patronage of the

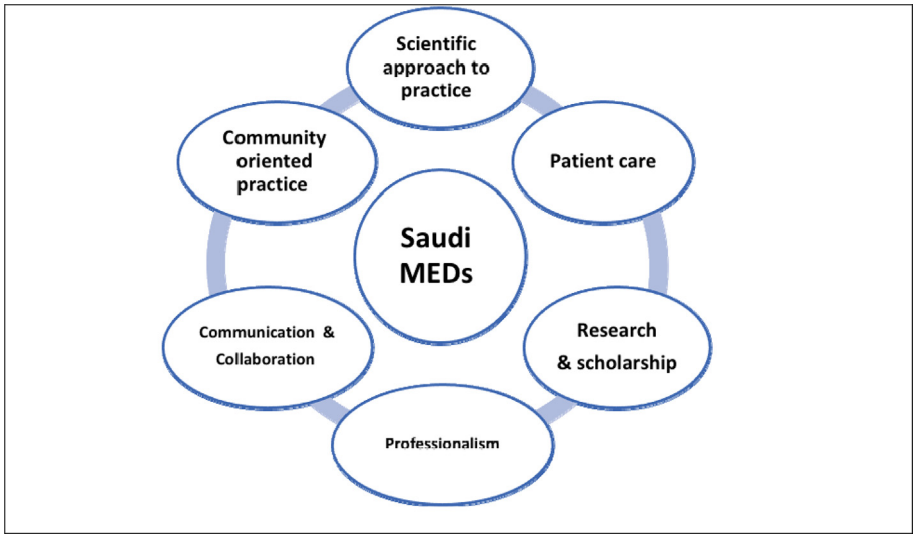

Fig. 2. The six domains of Saudi MEDs.

Ministry of Education. This initiative successed to generate a national consensus between heterogeneous stakeholders about the essential roles and obligations of medical graduates and physicians, and the core curriculum of MBBS programs in Saudi Arabia. On the other hand, this level of agreement did not achieved in 2007, with the initial project of developing national consensus of the essential learning outcomes

Table 1. Saudi MEDs framework.

Graduates of the Medical Programs will have the ability to achieve the following themes and learning outcomes:
Theme I: Scientific Approach to Practice
The integration and application of basic, clinical, behavioral and social science in clinical practice
PLO1. Integrate basic, clinical, behavioural and social sciences in medical practice
PLO2. Practice evidence-based health care
Theme II: Patient care
The establishment and maintenance of essential clinical and interpersonal skills to demonstrate proficient assessment and delivery of patient-centered management
PLO3. Demonstrate the essential clinical skills
PLO4. Use clinical reasoning, decision making, and problem solving skills in medical practice
PLO5. Manage patients with life-threatening medical conditions
PLO6. Formulate and implement appropriate management plans for patients with common medical problems
PLO7. Place patients' needs and safety at the centre of the care process
Theme III: Community oriented practice
The health care practicing is based on an understanding of the Saudi health care system and the application of health promotion and advocacy roles for the benefit and wellbeing of individual patients, communities, and populations
PLO8. Adhere to the regulations of Saudi healthcare system in the Kingdom
PLO9. Advocate health promotion and disease prevention
Theme IV: Communication and Collaboration
The effective communication with patients and their families and the practicing of collaborative care by working in partnership within a multi-professional team
PLO10. Effectively communicate verbally and in writing with patients, their families, colleagues, and other health professionals
PLO11. Practice teamwork and inter-professional collaboration
PLO12. Apply medical informatics in healthcare system effectively
Theme V: Professionalism
The commitment to deliver the highest standards of ethical and professional behaviour in all aspects of health practice, and take a responsibility for own personal and professional development
PLO13. Demonstrate professional attitudes and ethical behaviors of physicians
PLO14. Apply Islamic, legal and ethical principles in professional practice
PLO15. Demonstrate the capacity for self-reflection and professional development
Theme VI: Research and scholarship
The contribution to the advancement of medical practice with the rigors of scientific research
PLO16. Demonstrate basic research skills
PLO17. Critically appraise and demonstrate scholarly activities related to health sciences research

of medical schools in Saudi Arabia [25]. This may be related to the significant evolution of medical education in Saudi Arabia in the last decades as suggested earlier [2]. The growth of the number of medical schools with 87% in the last two decades, also associated with the improvement in the quality of provided training and assessment. Most of Saudi Medical colleges developed its' programs to contemporary outcome-based curricula that develop students and graduates' life-long learning skills [3,26]. The region also witnessed many international medical education activities and initiatives. The number of health educationists and postgraduate medical education programs were increased. This also associate with the role of the Saudi Society of Medical Education (SSME) to foster medical education initiatives and activities.

There was a robust development of the Saudi MEDs framework that considered different methodologies and involved stakeholders' ownership of the project's process and outcome. This was a very crucial in the current context, where there was no clear legitimate nature of the Saudi MEDs Framework or the Denary of Saudi Medical Colleges. NCAAA, which is overseen by The Education and Training Evaluation Commission (ETEC) is responsible for accrediting higher education programs and institutes. Nevertheless, the SCFHS is responsible of the SMLE for medical graduates and overseas physicians. Building ownership and partnership with these two legislation bodies was very essential for successful deployment of the Framework. This concured with the recent emphasis that current move of reform and expansion in Saudi medical education must be coupled with the accreditation and quality assurance procedures to ensure that each endeavors were directed towards internationally acknowledged goals and standards [3].

The taskforce was very committed to develop partnerships with the legislation bodies. Considering other stakeholders views and perceptions of the Saudi doctors enriched the Framework from different perspectives. As a result of the partnership, The NCAAA adopted level two of Saudi MEDs Framework (17- essential learning outcomes) as a tool of benchmark in MBBS programs [24]. Correspondingly, the SCFHS also agreed to considered the Saudi MEDs Framework in the SMLE blueprint. The national progress test that initiated by Qassim University in 2000 as a tool to evaluate the educational process among Saudi medical colleges, also applied the Saudi MEDs as a blueprint for the exam item. These changes in the practice of related legalistic bodies and development initiatives demonstrated the success of the Framework to develop a national benchmark for undergraduate medical education.

The three-level of Saudi MEDs Framework had remarkable similarities with other international competence-based medical education models, such as CanMEDS. This raised a concern regarding the challenge of the absence of contextual curricula that related to Saudi context and societal expectations. As argued that the efficiency of medical education driven from its' response to local needs and the link it built between medical schoold and the system of healthcare [27]. Saudi Arabia has a very wide social needs and diverse cultures that vary from region to another. Within such heterogeneous context, a general fixable competence-based Framework empowered each medical school to tailor its' program to fulfill their social expectations and needs to establish a contextual curriculum. Saudi MEDs was not developed to provide identical curricula. Yet it developed competence-based Framework to assure the quality of medical graduates [28]. Also Shadid and colleagues studies two frameworks (Saudi MEDs and CanMEds) and concluded that Saudi MEDs tailored to fit the needs of Saudi Medical schools, so they provide a general approach towards medical outcomes, while CanMEDS framework focused more on medical details and processes [28].

The success the Saudi MEDs as National Medical Education Directory Framework had many challenges. The major challenge, beside the legitimate power of the framework, was the school utilization of the framework as a tool to review, develop, or design an MBBS curriculum. Most deans and schools were excited to have a national framework, but faced difficulty to utilize it. This was also reported within CanMEDS project "many educators and medical professionals struggle to translate the CanMEDS roles into comprehensive training programs for specific specialties" [29]. Accordingly, a pilot study on three medical schools was applied to map Saudi MEDs to their curriculum. This aimed to gain an insight of the applicability of the Saudi MEDs framework to guide the evaluation and design of educational programs in different medical schools. Also, it explored perceptions of stakeholders (Dean, staff and students) of the framework and its flexibility to ensure a school autonomy and diversity of contextual curricula. The Project taskforce also defined the responsibilities of all concerned high stakeholders in this regard to ensure transparency and smooth implementation [24]. In addition, the taskforce designed a roadmap for successful deploying of the Saudi MEDs framework. This included alignment of the Saudi MEDs Framework with the NCAAA standards: upon request consultation; tailored training workshops; and developing an implementation manual.

The Framework developed contemporary model of medical education, which has the features to be explored and developed. Alrehaily and colleagues [30] investigated alignment and integration of the SMLE's blueprint and contents with the Saudi MEDs competency framework's themes and domains, and emphasized the need to improve the current alignment. Also AlSheikh and colleagues [31] developed a national consensus on entrustable professional activities (EPAs) for Saudi undergraduate medical education and mapping them with the "Saudi MEDs" competency Framework. The Denary of Saudi Medical Colleges assigned a taskforce for developing the internship training and evaluation, based on the Saudi MEDs Framework.

4. Conclusion

The Saudi Medical Education Directives Framework is developed as a competence-based model that aims to provide a national benchmark of medical education in the Kingdom. There is a national consensus among stakeholders about the framework and its importance to develop and maintain a quality medical education and practice in the Kingdom. The three-level model also provides a continuum framework that could improve all levels of medical education and practice.

However, successful deployment of the Saudi MEDs required a strategic plan and roadmap that incorporate all related stakeholders, which was the focus of the Denary of Saudi Medical Colleges and Saudi MEDs taskforce. By 2022, The Saudi MEDs Framework become the national benchmark to review and develop medical education in the Kingdom.

Ethical approval

Ethical approval has been granted from the Ministry of Education represented by the Denary of Saudi Medical Colleges (January 2010).

Other disclosure

None.

Conflict of interest

There are no conflict of interest.

Acknowledgments

The authors would like to recognize the support of the Denary of Saudi Medical Colleges and all affiliated deans at project period.

References

[1] Tekian A, Almazrooa AA. Does Saudi Arabia need an abraham flexner?. 2011/01/01 Med Teach 2011;33(1):72–3. https://doi.org/10.3109/0142159X.2010.528475.
[2] Bin Abdulrahman K. Saudi Arabia does not need an Abraham Flexner. 2011/01/01 Med Teach 2011;33(1):74–5. https://doi.org/10.3109/0142159X.2011.539643.
[3] Telmesani A, Zaini ARG, Ghazi HO. Medical education in Saudi Arabia: a review of recent developments and future challenges. East Mediterr Health J 2011;17.
[4] Bin Abdulrahman K, Harden R, Patricio M. Medical education in Saudi Arabia: an exciting journey. Med Teach 2012; 34(Suppl 1):S4–5. https://doi.org/10.3109/0142159x.2012.660509.
[5] Al-Gindan YM, Al-Sulaiman AA, Al-Faraidy A. Undergraduate curriculum reform in Saudi medical schools. Which direction to go? Saudi Med J Apr 2000;21(4):324–6.
[6] Frank JR, Snell LS, Cate OT, Holmboe ES, Carraccio C, Swing SR, et al. Competency-based medical education: theory to practice. Med Teach 2010;32(8):638–45. https://doi.org/10.3109/0142159x.2010.501190.
[7] Guidelines for program development and review: program learning outcomes (national commission for academic accreditation & assessment). 2010.
[8] Zaini RG, Bin Abdulrahman KA, Al-Khotani AA, Al-Hayani AM, Al-Alwan IA, Jastaniah SD. Saudi Meds: a competence specification for Saudi medical graduates. Med Teach 2011;33(7):582–4. https://doi.org/10.3109/0142159x.2011.578180.
[9] Howe EG. Professionalism: one size does not fit all. The J Clinical Ethics. Spring 2015;26(1):3–15.
[10] Jha V, McLean M, Gibbs TJ, Sandars J. Medical professionalism across cultures: a challenge for medicine and medical education. Medical teacher Jan 2015;37(1):74–80. https://doi.org/10.3109/0142159x.2014.920492.
[11] Al-Rumayyan A, Van Mook W, Magzoub ME, Al-Eraky MM, Ferwana M, Khan MA, et al. Medical professionalism frameworks across non-Western cultures: a narrative overview. Med Teach Apr 2017;39(sup1):S8–14. https://doi.org/10.1080/0142159x.2016.1254740.
[12] Al-Eraky MM, Chandratilake M. How medical professionalism is conceptualised in Arabian context: a validation study. 2012/04/01 Med Teach 2012;34(sup1):S90–5. https://doi.org/10.3109/0142159X.2012.656754.
[13] Reid NG. The Delphi technique, its contribution to the evaluation of professional practice. In: R.E, editor. In professional competence and quality assurance in the caring professions. Beckenham: Croom Helm; 1988. 230±262.
[14] Morgan DL. Focus groups as qualitative researchvol. 16. Sage publications; 1996.
[15] Smith SR, Fuller B. A competency-based curriculum for the Brown university school of medicine. Med Health R I 1996; 79:292–8.
[16] AAMC. Learning objectives for medical student education: guidelines for medical schools: report I of the Medical School Objectives Project. Acad Med Jan 1999;74(1):13–8.
[17] Simpson JG, Furnace J, Crosby J, Cumming AD, Evans PA, Friedman Ben David M, et al. The Scottish doctor–learning outcomes for the medical undergraduate in Scotland: a foundation for competent and reflective practitioners. Med Teach Mar 2002;24(2):136–43. https://doi.org/10.1080/01421590220120713.
[18] Rcpsc. CanMEDS: Better standards, better physicians, better care. Royal College of Physicians and Surgeons of Canada. Accessed 21 March 2017, http://www.royalcollege.ca/rcsite/canmeds/canmeds-framework-e.
[19] The CanMEDS 2005 physician competency framework. In: Frank JRT, editor. Better standards. Better physicians. Better care. The Royal College of Physicians and Surgeons of Canada.; 2005.

[20] Tomorrow's doctors (general medical Council). 2009.
[21] Outcomes for graduates: tomorrow's doctors (general medical Council). 2015.
[22] IIME. Global minimum essential requirements in medical education. Med Teach Mar 2002;24(2):130–5. https://doi.org/10.1080/01421590220120731.
[23] Cumming A, Ross M. The Tuning Project for Medicine–learning outcomes for undergraduate medical education in Europe. Med Teach Sep 2007;29(7):636–41. https://doi.org/10.1080/01421590701721721.
[24] ETEC. The national center for academic accreditation & evaluation" Saudi MED framework. Augest 2021. https://etec.gov.sa/en/productsandservices/NCAAA/AccreditationProgrammatic/Pages/Medical-Colleges.aspx.
[25] Zaini R. National consensus of the vision of the 'Saudi Future Doctor': current status and future perspective of medical education in Saudi medical schools. University of Sheffield; 2007.
[26] Mohieldein AH. Outcome-based approach to medical education towards academic programmes accreditation: a review article. J Pak Med Assoc Mar 2017;67(3):454–60.
[27] Grant J, Abdelrahmen MYH, Zachariah A, Aldayel AY, Alharbi MM, Alghamdi A. Curriculum design in context. In: Walsh K, editor. Oxford textbook of medical education. Oxford University Press; 2013.
[28] Shadid AM, Bin Abdulrahman AK, Bin Dahmash A, et al. SaudiMEDs and CanMEDs frameworks: similarities and differences. Adv Med Educ Pract 2019;10:273–8. https://doi.org/10.2147/amep.S191705.
[29] Carraccio C, Englander R, Van Melle E, Ten Cate O, Lockyer J, Chan MK, et al. Advancing competency-based medical education: a charter for clinician-educators. *Academic medicine*. journal of the Association of American Medical Colleges; 2015.
[30] Alrehaily A, Alharbi N, Zaini R, AlRumayyan A. Perspectives of the key stakeholders of the alignment and integration of the SaudiMEDs framework into the Saudi medical licensure examination: a qualitative study. Adv Med Educ Pract 2022;13:59–69. https://doi.org/10.2147/amep.S339147.
[31] Hmoud AlSheikh M, Zaini RG, Iqbal MZ. Developing and mapping entrustable professional activities with Saudi meds competency framework: a consensus study. Adv Med Educ Pract 2022;13:1367–74. https://doi.org/10.2147/amep.S379184.